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Value from Innovation

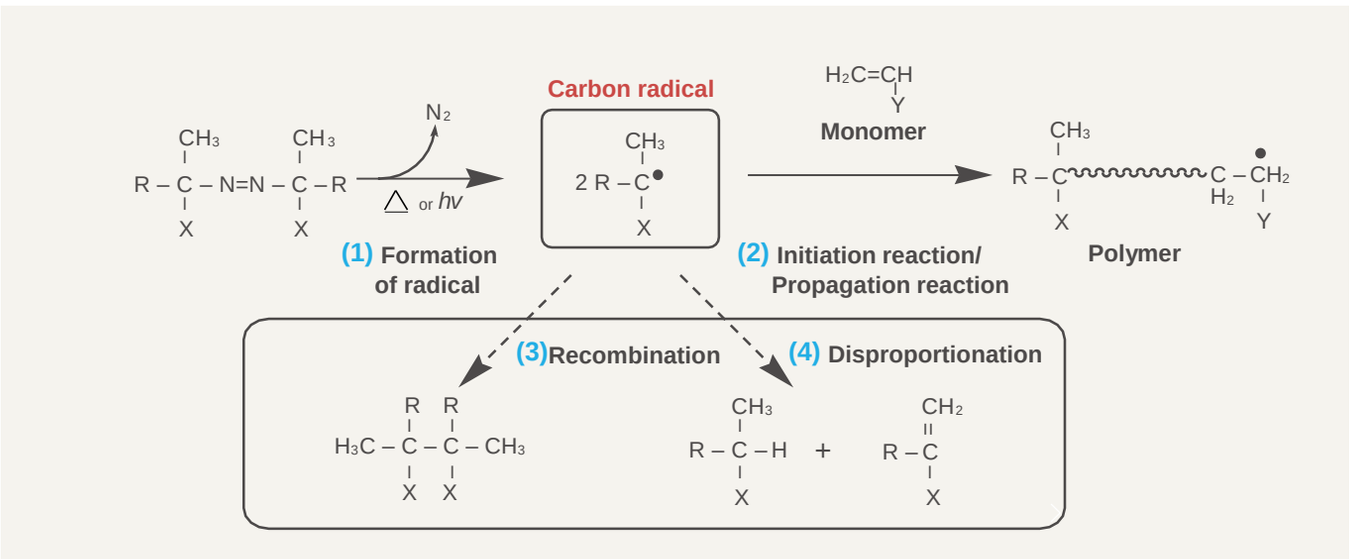
Wako

Azo Initiators

Polymer Chemistry

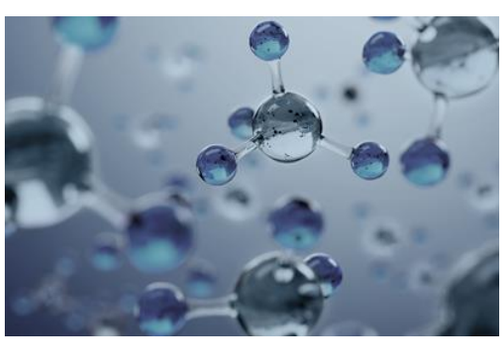
An azo polymerization initiator is a compound having an azo group (R-N=N-R') which is decomposed by heat and/or light, and forms carbon radical. The formed carbon radical is excellent in reactivity and progresses polymerization and halogenation reaction of different types of vinyl monomers.

Radical Formation Mechanism of Azo Polymerization Initiators (Thermal Decomposition)



Introduction

We develop a large variety of products taking advantage of our original organic synthesis technology, production technology, and refining technology accumulated in our long experience in the manufacturing of reagents. Azo polymerization initiators are used as reaction initiators in the synthesis of polymers. They are used mainly as radical polymerization initiators in a wide range of industries, such as acryl resins for paints, water absorbent resins, polymer coagulants, adhesives, and paper finishing agents. We have approximately 20 types of azo polymerization initiators of organic-solvent soluble type and water-soluble type.



Characteristics of Radical Polymerization Initiators

- Radical polymerization initiator shows an effect even in a small amount.
- It is not polar-sensitive, and a large number of solvent is available, a wide range of monomers can be polymerized.
- Polymerization at a low to high temperature ranges is possible.
- Reaction with simple facility and equipment is possible.

Selection Guide

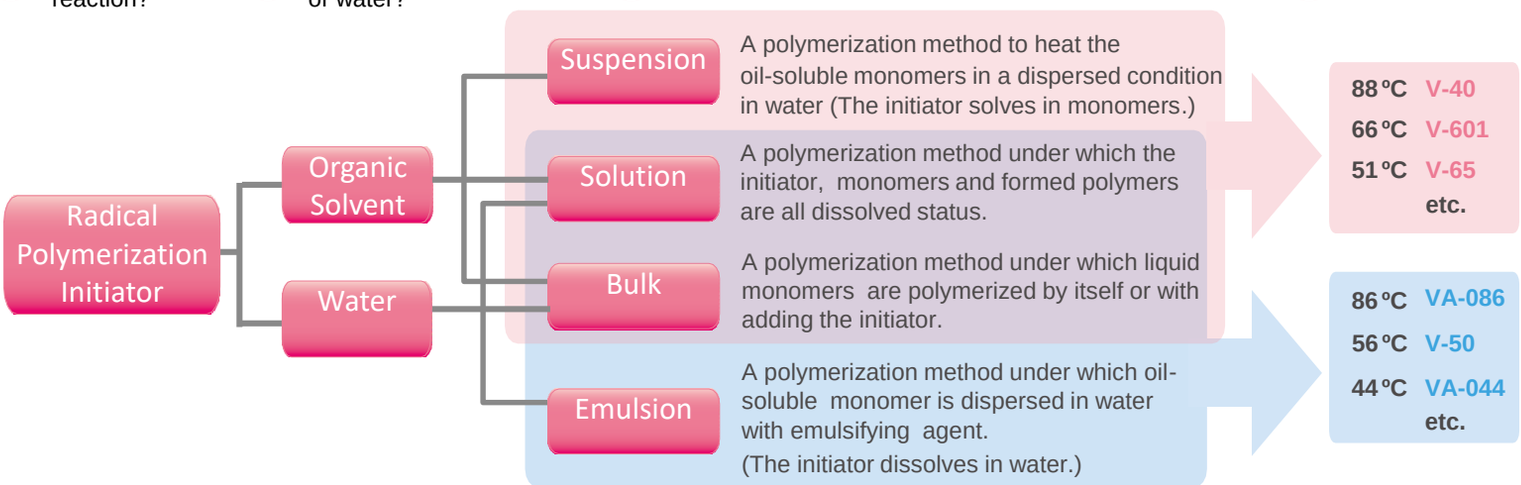
Selection of Polymerization Process

1 Is polymerization process a radical reaction?

2 Is the solvent an organic solvent or water?

3 Polymerization Method

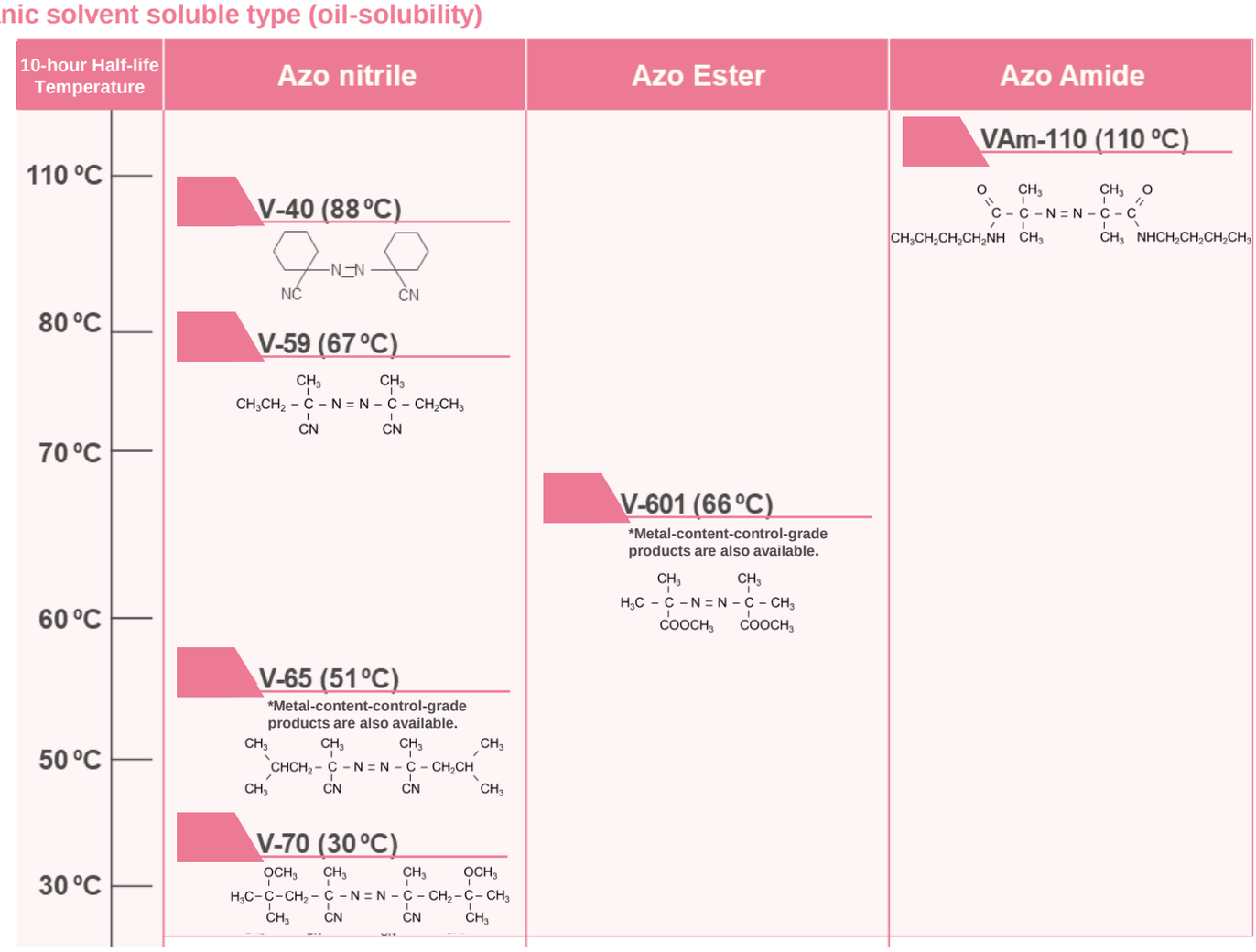
4 Polymerization Temperature



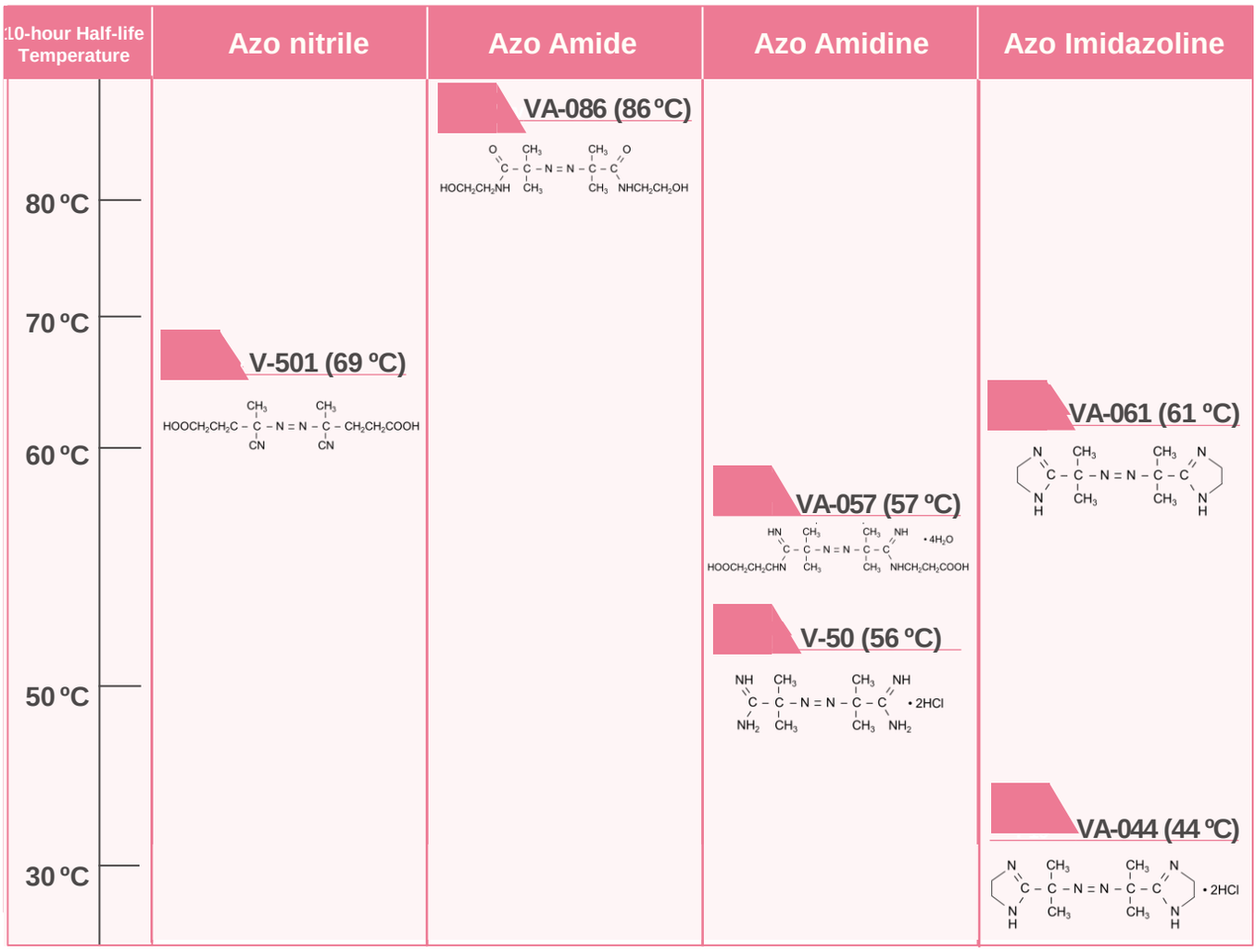
10-hour Half-life Temperature by Structure

We have azo polymerization initiators fit for a large extent of 10-hour half life temperature (*). You can select an initiator fit for your purpose.
(*10-hour half-life temperature: A temperature at which the concentration (amount) of azo group becomes a half in 10 hours in the solvent.)

Organic solvent soluble type (oil-solubility)



Water-soluble type (water solubility)



Solubility

	Oil-soluble Azo Polymerization Initiators					Water soluble Azo Polymerization Initiators			
	V-70	V-65	V-601	V-59	V-40	VA-044	V-50	VA-057	VA-086
Water	0.1	<0.1	0.3	<0.1	0.1	34.7	23.2	14.0	4.5
Methanol	1	28	>50	>50	4.4	1.7	2.1	28.8	7.4
Acetone	3.3	>50	>50	>50	30	Insoluble	Insoluble	Insoluble	Insoluble
Chloroform	20	>50	>50	>50	>50	Insoluble	Insoluble	Insoluble	Insoluble
Ethyl Acetate	2.0	>50	>50	>50	15	Insoluble	Insoluble	Insoluble	Insoluble
Toluene	3.0	>50	>50	>50	27	Insoluble	Insoluble	Insoluble	Insoluble
N,N-Dimethylformamide	N.D.	N.D.	N.D.	N.D.	N.D.	Insoluble	Insoluble	Insoluble	4.4

***g/100 g solvent, ambient temperature**

Product List

	Code No.	Product Name Alias Name	CAS No.	Pkg. Size	Storage
Azo Nitriles	LB-V501-50GS LB-V501-500GS	V-501 4,4'-Azobis(4-cyanovaleric acid)	2638-94-0	50 g 500 g	2-10ºC
	LB-V59-50GS	V-59 2,2'-Azobis(2-methylbutyronitrile)	13472-08-7	50 g	2-10ºC
	LB-V65-50GS	V-65 2,2'-Azobis(2,4-dimethylvaleronitrile)	4419-11-8	50 g	-20ºC
	LB-V65B-25GS LB-V65B-50GS	V-65B 2,2'-Azobis(2,4-dimethylvaleronitrile)	4419-11-8	25 g 50 g	-20ºC
	LB-V70-5GS	V-70 2,2'-Azobis(4-methoxy-2,4-dimethylvaleronitrile)	15545-97-8	5 g	-20ºC
Azo Esters	LB-V601-20GS	V-601 Dimethyl 2,2'-azobis(2-methylpropionate)	2589-57-3	20 g	2-10ºC
Azo Amides	LB-VA086-25GS LB-VA086-50GS	VA-086 2,2'-Azobis[2-methyl-*N*-(2-hydroxyethyl)propionamide]	61551-69-7	25 g 50 g	2-10ºC
	LB-VF096-50GS	VF096 2,2'-Azobis[N-(2-propenyl)-2-methylpropionamide]	129136-92-1	50 g	
Azo Imidazolines	LB-VA044-50GS LB-VA044-500GS	VA-044 2,2'-Azobis[2-(2-imidazolin-2-yl)propane]dihydrochloride	27776-21-2	50 g 500 g	Protect from Light
	LB-VA061-50GS	VA-061 2,2-'Azobis[2-(2-imidazolin-2-yl)propane]	20858-12-2	50g	-20ºC
Azo Amidines	LB-V50-25GS LB-V50-500GS	V-50 2,2'-Azobis(2-methylpropionamidine)dihydrochloride	2997-92-4	25 g 50 g	2-10ºC
	012-19312 016-19315	VA-057 2,2'-Azobis[*N*-(2-carboxyethyl)-2-methylpropionamidine]tetrahydrate	1041483-94-6 N-hydrate	25 g 500 g	2-10ºC
Macro Azo Initiators	LB-VPE201-50GS LB-VPE201-500GS	VPE-0201 4,4'-Azobis(4-cyanopentanoicacid)·Polyethyleneglycolpolymer	105744-24-9	50 g 500 g	2-10ºC
	LB-VPS1001-50GS	VPS-1001 4,4-Azobis(4-cyanovalericacid),polymer withalpha,omegabis(3-aminopropyl)polydimethylsiloxane	158947-07-0	50 g	2-10ºC

***Bulk quote requests are welcomes. Please contact us.**

FUJIFILM Wako Laboratory Chemicals site
https://labchem-wako.fujifilm.com

FUJIFILM Wako Chemicals U.S.A. Corporation
1600 Bellwood Road, Richmond, VA 23237, U.S.A
Toll-Free (U.S. only): +1 877 714 1920
Tel: +1 804 271 7677 Fax: + 804 271 7791
wkuslabchem@fujifilm.com